

I. AMENDMENTS

IN THE CLAIMS

Cancel claim 35 without prejudice to renewal.

Please enter the amendment to claims 20, 26, and 32, as shown below.

1.-19. (Canceled)

¹ 20. (Currently amended) A method of screening for an agent that modulates capsaicin receptor function, the method comprising:

a) combining a candidate agent with a eukaryotic cell comprising a recombinant nucleic acid comprising a nucleotide sequence that encodes a biologically active capsaicin receptor polypeptide, which nucleotide sequence is operably linked to a promoter, wherein said capsaicin receptor is encoded by a polynucleotide that hybridizes under stringent hybridization conditions to the complement of a polynucleotide having the sequence set forth in SEQ ID NO:1, and wherein the capsaicin receptor polypeptide is expressed on the cell surface; and

b) determining the effect of said agent on capsaicin receptor function.

² 21. (Previously presented) The method of claim ¹20, wherein said determining is by measuring capsaicin receptor-mediated increase in intracellular concentration of a cation.

³ 22. (Previously presented) The method of claim ²21, wherein the cation is selected from the group consisting of calcium, magnesium, potassium, cesium, and sodium.

⁴ 23. (Previously presented) The method of claim ²21, wherein the cation is calcium.

⁵ 24. (Previously presented) The method of claim ¹20, wherein said determining is by measuring a capsaicin receptor-mediated electrophysiological response.

⁶ 25. (Previously presented) The method of claim ⁵24, wherein the electrophysiological response is an inward cation-specific current.

7 ~~26~~. (Currently amended) The method of claim ~~24~~⁵ ~~[[23]]~~, wherein the response is measured using a fluorescent voltage-sensitive dye.

8 ~~27~~. (Previously presented) The method of claim ~~20~~¹, wherein said determining is by measuring blocking the activity of a capsaicin receptor antagonist.

9 ~~28~~. (Previously presented) The method of claim ~~27~~⁸, wherein the capsaicin receptor antagonist is selected from the group consisting of capsazepine and ruthenium red.

10 ~~29~~. (Previously presented) The method of claim ~~28~~¹, wherein said determining is by measuring blocking the activity of a capsaicin receptor agonist.

11 ~~30~~. (Previously presented) The method of claim ~~29~~¹⁰, wherein the capsaicin receptor agonist is selected from the group consisting of resiniferatoxin and capsaicin.

12 ~~31~~. (Previously presented) The method of claim ~~30~~¹, wherein said determining is by measuring capsaicin receptor-mediated apoptosis.

13 ~~32~~. (Currently amended) The method of claim ~~30~~¹, wherein said cell further comprises a reporter gene operably linked to a calcium inducible promoter, and wherein said determining is by measuring calcium-induced ~~reporter gene~~ expression of the reporter gene.

14 ~~33~~. (Previously presented) The method of claim ~~30~~¹, wherein the cell is selected from the group consisting of an amphibian oocyte, a mammalian cell line, and a cultured neuron.

15 ~~34~~. (Previously presented) The method of claim ~~30~~¹, wherein the capsaicin receptor is a mammalian capsaicin receptor.

35. (Canceled)